Patent Application Of

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Title Of Invention: **Non-Slip And Ventilated Horse Saddle Pad**

Cross- Reference To Related Applications: Not Applicable

Statement Regarding Federally Sponsored Research or Development: Not Applicable

Reference To A Microfiche Appendix: Not Applicable

BACKGROUND OF THE INVENTION

This invention relates to a non-slip and ventilated horse saddle pad that is made of a cohesive and adhesive p.v.c. foam material that will adhere to a horses back and simultaneously adhere to the bottom or horse side of saddlery.

The material used in the pad can be multiply layered with sufficient plies to provide the desired protective cushion required for the intended use purpose of the individual pad design.

A stiffener rigid inner layer (ply) of high density foam sheeting material can also be inserted between the two outer p.v.c. foam layers to more effectively distribute the total downward weight of the rider and saddle to the horses back. The stiffener inner layer covered with the same adhesive p.v.c. foam material will serve to increase the area of saddle stabilization to the contact area of the saddle and horse proportinate to the size of the total pad.

The foam coated material is a open knit pattern that allows air to flow thru and dissipate heat. Engineered materials that would allow solutions to this ancient problem have not been previously available in a form that would allow practical application design and use.

Past materials used in the construction of saddle pads are woven or of a solid poured form. The physical nature of these materials did not allow sufficient frictional adhesion to offer saddle stabilization and could not be formed to allow sufficient air flow while providing adequate cushion to protect the horses back and absorb shock.

SUMMARY OF THE INVENTION

Among the several objects of this invention may be noted, the provision of the outer two non-slip material layers containing a enclosed stiffener layer of material together to form a saddle pad that will stay in place, allow air penetration, provide the required cushion for shock absorbtion and be rigid enough to distribute the weight of the saddle and rider over a large enough area to the horses back to eliminate pressure points and chaffing.

Briefly, the laminated layers of this saddle pad of this invention comprises two non-slip pads one top, one bottom, and single or multiple inner stiffener layers of ventilated cushion materials required to provide sufficient cushion and shock absorbtion.

The outer layers and inner layers are permanently bonded together by stitching and or dielectric welding. Other objects and features of this invention will be in part apparent and in part pointed out herein after.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

FIG. 1 Is an exploded perspective view showing a non-slip saddle pad (4) with a stiff insert (5) between the to layers used in its contruction. Also shown is a saddle (3) with its cantle (6) and side flaps (7) (8).

FIG. 3 Is a top plan view of a saddle pad constructed of two layers of non-slip material (4) and a cut away view (5) of the inner layer of stiffener material used to increase the weight distribution area and contact area of the non-slip pad.

FIG. 5 Is a perspective view of a non-slip saddle pad (4) installed under a saddle (1) including the inner layer of stiffener material (5).

FIG. 6 Is a top view of the p.v.c. foam coated material used in the construction of the two non-slip outer layers of the saddle pad.

FIG. 7 Is a end view of the p.v.c. foam coated material used in the construction of the cushion inner layers of the saddle pad.

FIG. 8 Is a cross section of the layered pad taken in the plane of line 3-3 of Fig. 6.

DETAILED DESCRIPTION OF THE INVENTION

Referring now to the drawings,and first more particularly to fig. 1, a flexible, form fitting, ventilated, non-slip saddle pad made of two outer layers of non-slip material generally indicated by the reference numeral 4 covering a third inner layer of ventilated stiffener material 5. Fig. 3 shows the top layer cut away to show the stiffener inner layer 5.

In the preferred embodiment, the non-slip outer layer 4 is the type formed from a scrim Fig. 7, 3, 4 coated with a poly vinyl chloride (p.v.c.) foam 5. The scrims 3 and 4 are made of synthetic fibers which are knitted into a network having intermittent openings spaced along the surface of the scrim. The scrim is designed and knitted to provide yarn areas sufficient to hold and collect liquid p.v.c. and alternate open areas that will not collect p.v.c. Fig. 6 is a top view of one such scrim pattern coated with a chemically blown

p.v.c. having a coated area 1 and open area 2.

The p.v.c. coated pattern Fig. 6 is formed by dipping the scrim 3 in a liquid p.v.c. and then gelling the liquid p.v.c.in a curing oven. While being gelled a chemical causes gas to be released into the molten p.v.c.accomplishing expansion of the p.v.c. into foam which solidifies therby creating the foamed pattern of Fig.6.

When the p.v.c. solidifies after foaming by cooling the voids remain in the p.v.c. to produce a soft, resilient, elastomeric foam material with various degrees of surface tack. The desired foam properties are controlled by the p.v.c. resins used, plasticizer used and plasticizer levels used, oven temperatures, and processing speeds. The resulting coated material Fig.6 and Fig.7 is a uniform cell pattern corresponding to the openings in the scrim. However because the liquid p.v.c. increases in volume as it gells the scrim pattern is maginified or inceased in size proportinate to the p.v.c. expansion accomplished.

Different colors of p.v.c. (including black and white) may be use to make different colored pads 8.

Although similar materials are sold under different trademarks the materials used in the preferred embodiments are sold by Vantage Industries of Atlanta Georgia under the trademarks, Sultan, Soft-Grip, Soft-Tex. Each of these pads 8 is made with a differently shaped scrim Fig. 6 using the process described.

Foam coated pads Fig.6 produced by the process described have several advantageous properties. The material is light weight and low in cost.

Further the foamed p.v.c. is a high friction material that can be formulated and produced to resists sliding, cohesively and adhesivley across materials with poor friction properties such as leather or horse hair and horse skin that are very smooth.

Thus rough surfaces or adhesives are not necessary to prevent the material from sliding when placed in contact with leather or a horses back.

In addition the scrim used in the manufacture of the foam pad increases the tensile strength of the foam pad so that they allow the non-slip properties of the blown p.v.c. to be used in this saddle pad construction and application.

The p.v.c. foam coated non-slip pad is produced tospecified thickness and hardness for use in construction of the top and bottom outer layers of the saddle pad and produced at another specified hardness for use in construction of the inner layers of the saddle pad.

The outer layer foam pad material is manufactured at .250 to .270 inches in thickness with a shore 00 scale hardness of 45 to 55. The inner layers of foam pad material is manufactured to .200 to .225 inches of thickness with a shore 00 scale hardness of 75 to 85.

The inner layer material is designed and manufactured to provide stiffness, air-flow, and durability. The outer layer material is designed and manufactured to provide non-slip, air flow, and softness. The manufacture of the p.v.c. foam pad material property specifications is accomplished by raw materials, chemical compounding and oven processing speed and temperature setting combinations.

Other advantage of the saddle pad Fig. 1 produced with these materials is its low moisture absorbtion, easy cleanability, fast drying, and does not collect and retain horse hair or debris. The material is flexible and allows forming contoured pads that properly fit a horses back.

The material is dieelectrically weldable Fig.8,9,10 which allows multiple layers to be spot welded together to achieve the desired level of cushion by layers used while

maintaining air -flow.

Fig. 8 shows three layers of p.v.c. foam 6, 7, 8, each layer is .250" to .275" in thick thus forming a total pad thickness of .750" minimum. The cells of each layer tend to be compressed 9 by the pressure created by the dieelectric weld seam point 10. The finished weld seam 10 is 1/8 the thickness of the original three layers of material 6,7,8. This weld seam 10 serves as a stabilizing bond point between the three layers and serves as a break line in the total pad construction which allows the pad to drape and fit acceptably on the horses back.

By producing the outer material layers as specified levels of hardness of shore 00 hardness scale 45 to 55 a dry surface coefficient of friction index of 2.1 as obtained by the English XL slipmeter test method can be obtained.

By comparison the dry English XL slipmeter index of the following materials is offered for comparison.

DRY ICE	.2 COEFFICENT OF FRICTION
WET ICE	.0 COEFFICIENT OF FRICTION
HORSE HAIR	.4 COEFFICIENT OF FRICTION
LEATHER	.3 COEFFICIENT OF FRICTION
ROUGH CEMENT	1.2 COEFFICIENT OF FRICTION
DENIM TEXTILE	.4 COEFFICIENT OF FRICTION